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Research Article

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ABSTRACT

Background: Each year, approximately 287,000 women die from complications related to pregnancy and childbirth, with 99% of these deaths occurring in developing countries. Modern contraceptive, particularly long acting family planning methods are highly effective in reducing maternal mortality by preventing unintended or closely spaced pregnancies. This paper, therefore, aims to determine the level of utilization of long acting contraceptive methods and explore its determinants among child bearing age mothers in Arba Minch town, Gamogofa zone, Ethiopia.

Method: Community based cross sectional study was conducted from May15-30 2014 among child bearing age women. Systematic random sampling technique was employed to select 358 study participants. A pre-tested and structured questionnaire was used to collect the data. Bivariate and multivariable data analysis was performed using Statistical Package for Social Sciences (SPSS) version 20 software to assess statistical association.

Result: Long acting contraceptive method utilization was 13.1%. From the socio-economic factors, educational status of the mother, having functional radio or television at home, positive attitude and higher knowledge were found to be independent predictors of long acting contraceptive methods utilization.

Conclusion: Utilization of long acting contraceptive method was very low despite multi-pronged activities have been undertaken throughout the country. Thus, community based health care workers should strengthen information, education and communication to ensure that women have higher knowledge and positive attitude towards long acting contraception methods.

Keywords: Long acting contraceptive methods, determinants, cross sectional, Ethiopia.

ABBREVIATIONS

EDHS: Ethiopian Demographic and Health Survey; LACM: Long acting contraceptive methods; MDG: Millennium Development Goals; IUCD: Intra Uterine Contraceptive Device; WHO: World Health Organization; MMR: Maternal mortality ratio

BACKGROUND

In many developing countries, maternal mortality still remains a challenge and thus, progress towards the fifth Millennium Development Goal (MDG), to reduce maternal mortality by three quarters between 1990 and 2015, has been slow [UN, 2011]. Each year, approximately 287,000 women die from complications related to pregnancy and childbirth, with 99% of these deaths occurring in developing countries. Maternal mortality has shown large discrepancies between developed and developing countries. Maternal mortality ratio (MMR) in developing regions is 15 times (240/100,000 live births) higher than in developed regions (16/100,000live births)[WHO, 2005].

Sub-Saharan African countries had the highest MMR at 500 maternal deaths per 100,000 live births [WHO, 2010]. In Ethiopia, maternal mortality is among the highest in the world [FMOH, 2010]. According to Ethiopian Demography and Health survey (EDHS) 2011report, MMR was 676 per 100,000 live births, which is slightly higher than EDHS 2005 report (673 per 100,000 live births) [Central statistical agency , 2011 ; EDHS , 2005] . Majority of

maternal deaths worldwide are brought about by direct causes such as hemorrhage, infection, obstructed labor, unsafe abortion, and high blood pressure [WHO, 2005; WHO, 2010; UNDP, 2011].

Unintended pregnancy which is complicated with unsafe abortion, contributes significantly to maternal morbidity and mortality in the developing world [WHO, 2010; Hubacher et al., 2007]. Each year, around 87 million women become pregnant unintentionally. Of the estimated 211 million pregnancies that occur each year, about 46 million end in induced abortion [WHO, 2005].

Modern family planning methods, particularly Long Acting Contraceptive Methods (LACM) are highly effective in reducing maternal mortality by preventing unintended or closely spaced pregnancies [WHO, 2005]. LACM are ideal pregnancy prevention and spacing options. These methods are safe, effective, inexpensive, and reversible, require little to no maintenance, and have much better compliance rates than other hormonal methods. They require little attention after insertion and prevent pregnancy for an extended period. These LACM include the Intra-Uterine Device (IUCD) and the progestogen implant. The IUCD and progestogen implant are reversible, and may also be referred to as long-acting reversible contraception [ACOG Committee, 2012].

Nevertheless, in many developing countries, millions of women who do not want a child or who want to postpone their next pregnancy are not using any contraceptive method [Ross JA, Winfrey WL, 2000; Safe abortion, 2003]. Lack of access, contraceptive avoidance, or inconsistent use remains the dominant cause of unintended births [John, 2006]. In Ethiopia, despite increment from 6 percent in the 2000 EDHS to 27 percent in the 2011 EDHS modern contraceptive method utilization is limited [EDHS, 2011; EDHS, 2005]. Only 27% of the respondents utilized modern contraceptive methods. Twenty-five percent of currently married women have an unmet need for family planning [EDHS, 2011]. However, in Ethiopia studies addressing determinant factors of long acting contraceptive utilization are scarce. This paper, therefore, aims to determine the level of utilization of long acting contraceptive methods and explore its determinants among child bearing age mothers in Arba Minch town, Gamogofa zone, Ethiopia.

METHODS AND MATERIALS

Study setting and period

This study was conducted from May15-30/ 2014 in Arba Minch town. Arba Minch is one of the districts in South Nations, Nationalities and People's Regional state found in Gamo Goffa zone. It is located in the Great Rift Valley. The administrative town of this district, ArbaMinch, is located about 502 Kms to south West of Addis Ababa, the capital city of Ethiopia. The district is situated 1285 meters above sea level. According to the figure from Central Statistical Agency, 2007, this district has a total population of 90,000, of which reproductive age women accounted for 42,792 [Wikipedia, 2013]. Regarding the health care facility, the town has one general hospital and two health centers operating currently.

Study design and Population

A community based cross-sectional study was undertaken among randomly selected child bearing age women living in Arba Minch town. Women who were unable to communicate and residing in the study area for less than six months were excluded from the study.

Sample size determination and sampling procedure

A sample size of 360 was determined using sample size formula for estimating a single population proportion with the assumption that the proportion of long acting contraceptive utilization, margin of error, confidence interval, design effect and expected non-response rate to be 12.3% [Alemayehu et al, 2012], 5%, 95%, 2 and 10% respectively.

Multi-stage sampling was used to select the study subjects. First, all the Kebeles /the smallest administrative unit in Ethiopia/ in the town were determined to be 11. Then, four kebeles were selected by lottery method. The calculated sample size was proportionally allocated to each study kebeles. Then, frames of households were prepared for each kebele in collaboration with the administrators of respective kebeles. Households with a reproductive age women were selected using systematic random sampling from the existing sampling frame of households. For selecting the study participants, different sampling intervals were used for each kebele. Whenever more than one eligible respondent was found in the same selected household, only one respondent was chosen by lottery method. For households with no eligible woman, the immediate next household was selected and then, subsequent households were included according to the already pre-determined order.

Data collection methods

A structured standard interviewer administered questionnaire, which was first prepared in English and translated to Amharic (local language) was employed to obtain information on socio-demographic, birth history, knowledge and attitude of women about long acting contraceptive methods. Before the actual data collection, the questionnaire was pre-tested on 5% of the sample in one of the kebele which was not included in the study area. Based on the pretest, the time needed for complete interview and the number of data collectors needed were estimated. Five under-graduate nursing students collected the data. Two B.Sc holder health care workers with similar work experience were assigned to supervise the data collection process.

Data processing and analysis

Data were coded, entered and cleaned using EPI-INFO version 3.5.1 and further cleaned and analyzed using SPSS for Windows version 20. Unbivariate and bivariate analysis was carried out. Forward step wise LR was used to identify variables which had the largest contribution to the model. Finally, multivariable analysis was done using SPSS version 20 for selected variables to determine their independent effects on the outcome variable. Statistical tests such as Chi-square, odds ratio with 95% confidence interval were employed as appropriate.

Measurement

Knowledge of women was measured by the total number of correct answers to 8 items on knowledge, with a minimum score of 0 and maximum of 8. It was categorized based on the percentage of knowledge score of respondents. It was categorized as “high”; those who knew 80% and above, “moderate”; those who know 60 - 79% and “low” those who knew less than 60% of the knowledge questions.

Similarly, to measure the attitude of the women, two categories were assigned:

Positive attitude: Those who scored above mean to the correct answers from attitude measuring LAPMs questions.

Negative attitude: Those who scored mean and below to the correct answers. Finally, women’s utilization of long acting contraceptive methods was set as binary outcome variable. For the purpose of analysis, the attitude of women was grouped into three: “strongly agrees” and “agree” were grouped together as “agree”, “strongly disagree” and “disagree” were grouped together as “disagree” while not sure was categorized as it was.

Ethical consideration

Ethical clearance was obtained from the Institutional Review Board (IRB) of Arba Minch University, College of Medicine and Health sciences. Official letter was written from AMU, Department of Nursing to Arba Minch Woreda Administration. Informed verbal consent was secured from each respondent after explaining the purpose and the procedures of the study. All responses were kept confidential and anonymous.

RESULT

Socio-demographic characteristics of respondents

Three hundred and fifty eight child-bearing age women were interviewed, making a response rate of 99.4%. Among the respondents, 72(20.11%) were at the age range of 20-24 years; whereas, the smallest number 19(5.3%) were 45-49 years old. Concerning their educational status, 60 (16.76%) were illiterate, 113(31.56%) were 1-8 grade, 109(30.45%) were educated from 9th-12th grade while the remaining 76(21.25%) graduated from college and university. Occupationally, 90(25.14%) were governmentally employed, 75(20.95%) were merchants, 60(16.75%) were daily labourers, and 70(19.55%) were house wives. Forty six (12.85%) of the respondents had monthly income of >2001birr, while 69(19.27%) were having <500birr. Two hundred eighty (78.2%) had radio/TV at their home, and 280(78.21%) were married (table1).

Table 1 Socio-demographic characteristics of women aged 15-49 years in Arba Minch town, Gamogofa zone, Southern Ethiopia, 2014

Variables	Frequency	Percent
Age at interview		
15-19	47	13.13
20-24	72	21.11
25-29	59	16.48
30-34	50	13.97
35-39	64	17.88
40-44	47	13.13
45-49	19	5.3
Religious status		
Orthodox	151	42.18
Protestant	129	36.03
Muslims	62	17.32
Others	16	4.47
Educational status		
Illiterate	60	16.76
1-8th	113	31.56
9-12th	109	30.45
Occupational status		
Student	60	16.78
Merchant	75	20.95
Daily labor	40	11.17
House wife	81	22.63
Employed	90	25.14
Monthly income		
≤500	69	19.27
600-1000	60	16.76
1100-1500	77	21.51
1600-2000	106	29.6
≥2000	46	12.85

Birth history of participants

Among the married women,109(38.92%)were married at the age of less than 18 years and 25.5% of the respondents were giving birth at the age of less than 18 years. Majority,120(43.2%) had 1-2 children (table 2).

Table 2 Birth History of women aged 15-49 years in ArbaMinch town, Gamogofa zone, Southern Ethiopia, 2014

Variables	Frequency	Percent
Age at first marriage(N=280)		
<18	109	38.9
>=18	171	61.1
Age at 1st birth(N=278)		
<18	70	25.2
>=18	208	74.8
Number of alive children		
Have no children	12	4.3
1-2	120	43.2
3-4	80	28.8
5 and above	66	23.7

Knowledge of women about long acting contraceptive methods

In this study, 194(54.19%) were not sure that IUCD can prevent pregnancy for 10years, whereas 122(34.08%) of the respondents were aware about it. Out of the total respondents, 56(15.6%) did not know that IUCD interferes with sexual intercourse. Two hundred and thirty one (64.5%) of the respondents were aware about the notion that Implanon prevents pregnancy for 5 years, 43(23.5%) did not know and the rest 84(23.5%) of the respondents were not sure about it. Among the participants, 91(25.4%) were aware that after immediate removal of Implanon, women become pregnant (Table3).

Table 3 Knowledge of reproductive women aged 15-49 years about long acting Contraceptive Methods in Arba Minch town, Gamogofa zone, Ethiopia, 2014

Knowledge statements of married women on LACMs	True		False		Not sure	
	No	%	No	%	No	%
IUCD can prevent pregnancies for more than 10 years	122	34.08	42	11.73	194	54.19
IUCD is not appropriate for females at high risk of getting STIs	103	35.77	255	64.13	0	0
IUCD has no interference with sexual intercourse or desire	189	52.6	56	15.6	113	31.6
IUCD is immediately reversible(become pregnant quickly when removed)	113	31.6	143	39.9	102	28.5
IUCD cannot cause cancer	134	37.4	80	22.3	144	40.2
Implant can prevent pregnancies for 5 years	231	64.5	43	23.5	84	23.5
Implants require minor surgical procedure during insertion and removal	192	53.6	55	15.4	111	31.1
Implants is immediately reversible	91	25.4	147	41	120	33.5
Knowledge score of respondents High Moderate less	120(33.55) 138(38.55) 100(27.9)					

Attitude of women towards long active contraceptive methods

Among the respondents, 230(65%) thought that Implanon causes irregular vaginal bleeding and 235(65.6%) reported that insertion and removal of Implanon was highly painful. One hundred and thirty eight (38.5%) agreed that privacy was not kept during IUCD insertion and 169(47.2%) said that IUCD prevents from performing daily activities (Table 4).

Table 4 Attitudes of women towards long acting contraceptive methods in Arba Minch town, Gamogofa, Ethiopia, 2014

Attitude questions	Disagree		Not sure		Agree	
	No	(%)	No	(%)	No	(%)
Using implant causes irregular bleeding	128	35.8	135	37.7	95	26.5
Insertion and removal of implant is highly painful	123	34.4	131	36.6	104	29
Insertion of IUD device causes loss of privacy	138	38.5	112	31.4	108	30.2
Using IUD restricts normal activities	189	52.8	107	29.9	62	17.3
Attitude score towards LACP Positive attitude Negative attitude	92(25.7) 266(74.3)					

Long acting contraceptive method utilization

In this study, only 13.1% of the respondents utilized long acting contraceptive methods (Figure1). From the respondents, 256(71.5%) visited health institutions for family planning service. From those who visited health institutions, 166(64.84%) were using family planning in the last six months. Among those who used contraceptives, 12(3.4%) were IUCD users. Among those who visited health facility, 176(68.75%) were facing problems due to the use of FP methods whereas, 80(31.25%) did not. Among the users who faced a problem, 100(56.81%) discussed with health care workers whereas, 76(48.18%) did not. Out of those who discussed about the problem, 73% of them reported they have got information about the solution.

Among those who visited family planning service, 155(60.54%) had discussed with health care workers about the notion that family planning methods should be used, whereas 101(39.45%) used without discussion. From those who discussed about FP methods, 85(54.8%) were about Implanon, 65(41.9) were about IUCD and the remaining heard about other contraceptive methods. Concerning the choice of their husbands, 66(25.78%) decided only by themselves whereas 190(74.22%) were discussing with their partners to use contraceptives.

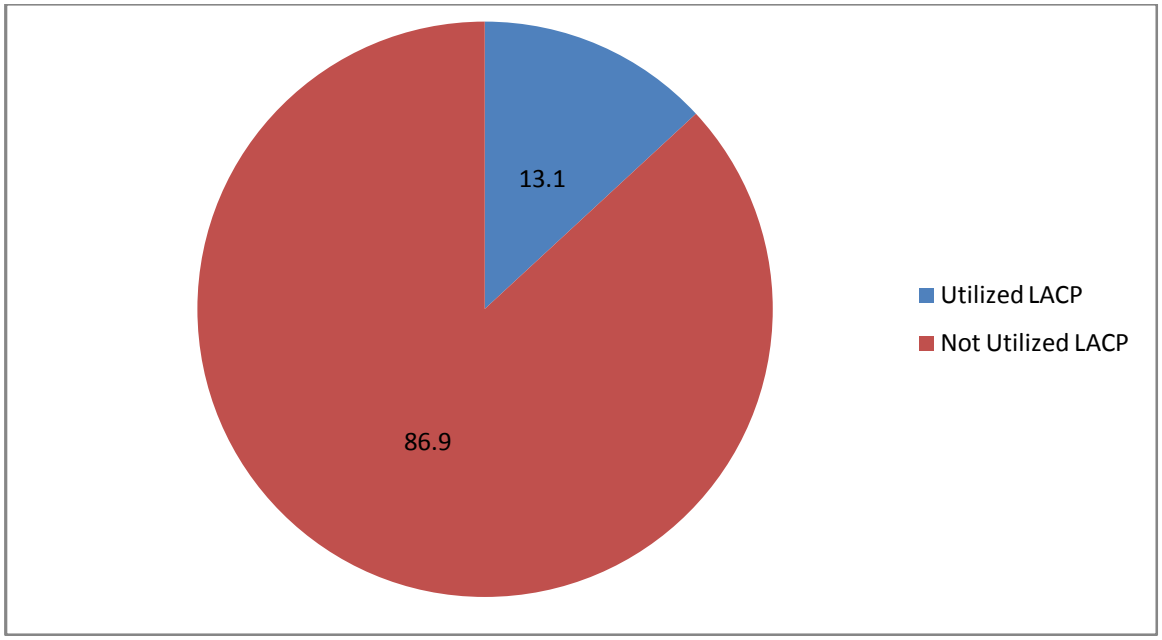

Figure1 Long acting contraceptive methods utilization among reproductive age women in Arba Minch town, Gamogofa zone, Southern Ethiopia, 2014

Factors associated with long acting contraceptive utilization

In multivariable analysis, educational status of the mother, Having functional radio or television at home, attitude and knowledge about long acting contraceptive methods were found to be independent predictors of the outcome variable (table 5).

Level of education showed strong statistical association with LACM utilization. Mothers with formal education were about 2 times (AOR=1. 9, 95%CL: [2.13-4.25]) more likely to utilize long acting contraceptives as compared to those who had not attended formal education. The other strong predictor of utilization was the possession of radio/or television. The odds of utilizing long acting contraceptive methods was 4 times higher for mothers who had functional radio or television in their home as compared to those who had none (AOR= 4, 95%CI:[1.23-5.12]).

The odds of long acting contraceptive utilization increased for mothers who had high level knowledge and positive attitude towards long acting contraception. Mothers who had positive attitudes towards long acting contraception were 3 times (AOR=3, 95%: [1.43-3.57]) more likely to utilize than those who had negative attitudes. Similarly, the likelihood of utilizing long acting contraceptive methods increased for mothers whose knowledge score about contraception was higher(AOR=2.3,95%CI:[1.27-2.67]).

Table 5: Factors associated with long acting contraceptive utilization among child-bearing age mothers in Arba Minch town, Gamogofa zone, Southern Ethiopia, 2014

Variables	Crude Odds Ratio	Adjusted Odds Ratio	P-Value(Adjusted)
Age at interview			
15-24	1	1	
25-29	0.3(0.23-2.34)	0.25(0.34-2.34)	0.064
30-34	2(1.04-7.23)	0.73(0.24-1.27)	0.123
>=35	0.6(0.24-1.45)	2.00(0.25-5.24)	0.074
Educational status			
Have formal education	2(1.23-3.12)	1.9(2.13-4.25)	0.000
No formal education	1	1	
Have Radio/TV			
Yes	5(2.12-4.13)	4(1.23-5.12)	0.001
No	1	1	
Number of living children			
0-2			
3-4	1	1	
>5	0.12(0.27-5.87)	0.34(0.76-1.35)	0.085
	1.12(0.15-2.45)	1.23(0.98-4.24)	0.234
Attitude towards LACP			
Positive attitude	5(1.23-4.89)	3(1.43-3.57)	0.000
Negative attitude	1	1	
Knowledge score			
High knowledge	2.0(2.96-3.34)	2.3(1.27-2.67)	0.005
Moderate knowledge	1.89(1.23-4.25)	3.4(1.38-4.62)	0.000
Low knowledge	1	1	

DISCUSSION

This community based cross-sectional study identified factors that influence utilization of long acting contraceptive methods among child bearing age women in Arba Minch town, Gamogofa zone, Ethiopia.

In this study the prevalence of LACM utilization was 13.1% .This finding is nearly in line with the evidence from a study conducted in Mekelle town and Goba [Alemayehu et al., 2012; Takele et al., 2012]. But, this is lower than evidence from studies done in Canada, and El Salvador [Wendy, 2014; Hohmann et al., 2011]. This difference could be explained by the fact that mothers in these countries had better educational status and better access to family planning information.

Level of education showed strong statistical association with LACM utilization. Mothers with formal education were about 2 times (AOR=1. 9, 95%CL: [2.13-4.25]) more likely to utilize long acting contraceptive methods as compared to those who had not attended formal education. This is in line with evidences from Ethiopia and El Salvador [EDHS, 2011; Hohmann et al.,2011]. This can be explained by the notion that educated women have better access to health care information, have greater autonomy to make decisions and have greater ability to use quality

health care services. In contrary, level utilization was the same across all educational levels in the United States of America [Lawrence B, Jenna J, Megan L, 2012].

The other strong predictor of utilization was possession of radio/or television. The odds of utilizing long acting contraceptive methods was higher for mothers who had functional radio or television in their homes as compared to those who had none (AOR= 4, 95%CI:[1.23-5.12]).This can be partly explained by the fact that the media is effective in information dissemination, which increases awareness about health care information and healthcare facilities that are available and fosters inter-personnel communication, which could facilitate behavioral changes.

In line with evidence from Ethiopian demography and health survey 2011 report [EDHS, 2011], the odds of long acting contraceptive utilization increased for mothers who had positive attitude towards long acting contraception. Mothers who had positive attitudes towards long acting contraception were 3 times (AOR=3, 95%: [1.43-3.57]) more likely to utilize than those who had negative attitudes. Similarly, the likelihood of utilizing long acting contraceptive methods increased for mothers whose knowledge score about family planning was higher (AOR=2.3, 95%CI: [1.27-2.67]).This is consistent with study finding from Mekelle town, Tigray region [Alemayehu et al., 2012]. This can be attributed to the fact that women who have good knowledge about family planning are more likely to fairly weigh the risks and benefits of using contraception and giving sound decision.

When interpreting the findings of this study, some limitations should be considered. The cross-sectional nature of the data made it impossible to establish causal relationships. Besides, the source of data for this study was based on the self-report of respondents, and provided no validation of obtaining information with any objective source such as health facility cards. But it is believed that biases are unlikely in such less sensitive events. The knowledge and attitude of men towards long acting contraception may influence the utilization of their wives. Thus, this study may be biased as it did not address men's perspectives. The study also did not discover any information from the service providing side of LACMs.

CONCLUSION

Utilization of long acting contraceptive method was very low, despite multipronged activities have been undertaken throughout the country. From the socio-economic factors, educational status of the mother, having functional radio or television at home, positive attitude and higher knowledge were found to be independent predictors of long acting contraceptive methods utilization. Thus, policy makers should further encourage women to pursue their education to at least primary school level. Moreover, community based health care workers should strengthen information, education and communication to ensure that women have higher knowledge and positive attitude towards long acting contraception methods.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

DH, MA, SG, NK, TK, Z Gdesigned the study, participated in the data collection, performed analysis and interpretation of data and drafted the paper and prepared all versions of the manuscript. YWassisted in the design, approved the proposal with some revisions, participated in data collection, analysis and revised subsequent drafts of the paper. Both authors read and approved the final manuscript.

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